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ABSTRACT

In keeping with the increased use of computers in schools, the available software for foreign language instruction has grown to over 1,000 titles, mostly of the drill and practice type, and professional associations are reviewing software and computer-related instructional techniques. However, there seems to be no clear direction for the future of microcomputer use in foreign language education at this time, and developments in the profession seem to have reached a plateau. The next few years, seen as the second wave of computer use, will be spent determining where and how computer-based instruction fits into the perceived goals and directions of foreign language teaching in general, with increased emphasis on the accountability of the technology. Problems persist in the production, evaluation, and availability of high-quality software for classroom use. However, the cost of hardware continues to decrease, and technological advancements and adaptations hold considerable promise for foreign language instruction. In addition, innovative networking and telecommunications arrangements are beginning to link teachers, students, and instructional materials at long distances and with little expense. (MSE)

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ERIC Clearinghouse on
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Q & A

MICROCOMPUTERS AND SECOND LANGUAGE TEACHING: THE SECOND WAVE

Prepared by John S. Harrison
November, 1986

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ERIC CLEARINGHOUSE ON LANGUAGES AND LINGUISTICS

Q&A

Microcomputers And Second Language Teaching: The Second Wave

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What Has the Foreign Language Teaching Profession Achieved in Using Computers in the Last Several Years?

To a greater or lesser degree, every school has acquired some computer equipment. This ranges from idyllic situations such as in the Shoreham-Wading Public School system near Long Island, New York where an Apple computer has been placed in the home of every student, to the more common situation of the foreign language teacher who must share the one computer in the school with everyone else.

In keeping with the increasing use of computers in our schools, basic software development has gone through an initial stage in which more than 1,000 titles in foreign languages alone have been published, the bulk of which deal with discrete items rather than complete courses, and are of the drill and practice type. Listings of many of these can be found in Cornick (1983), Hertz (1983), Stolurow (1983), and Underwood (1984). In addition, the foreign language professional associations have begun and continue to review computer software. During the past several years, nearly every issue of *French Review*, *Hispania*, *Modern Language Journal*, Northeast Conference *Newsletter*, and *Unterrichtspraxis* has included reviews of software as well as columns on computer issues. The establishment of the Computer Assisted Language Learning and Instruction Consortium (CALICO) has given the profession an organization devoted exclusively to the use of computers in second language instruction. Much has been accomplished in a short period of time.

What Are the Goals of the Second Wave of Computer Use in Foreign Language Instruction?

We seem to have reached a plateau. Nearly everyone has gotten involved with computers in some way, yet almost no one seems to have a clear sense of direction for the future. The next few years will be spent in determining where and how computer-based instruction best fits into the perceived goals and directions of foreign language teaching in general. Thus, while the list of unanswered questions is long, the most important question is how new resources may be integrated with existing curricula.

Dr. Margaret Roblyer (1986), Associate Professor of Computer Education at Florida A&M University, has identified four problems of the second wave of computerization: (1) hardware access; (2) software access; (3) training (beyond computer literacy); and (4) planning for integration (using whole systems instead of piecemeal software). As solutions, she suggests (1) mass purchases with increased sharing and scheduling; (2) increased use of clearinghouses for software, with more lists and less evaluation; (3) greater pre-service training of teachers; and (4) greatly intensified planning efforts for integration of computer-based instruction. Additionally, in the second wave of computer use in second language instruction, greater emphasis will be placed on the accountability of the technology.

What Is the State-of-the-Art in Foreign Language Software?

A few publishers have developed software to accompany textbooks and see the accompanying software as a selling edge. For those foreign language teachers, however, who use a textbook without its own software, the development of authoring packages has allowed creation of computerized materials to fit that teacher's plan for the students. Nonetheless, the Education Products Information Exchange (1985) reports that even given the large number of products, there is not enough software to adequately support most teaching goals and to provide for individual differences among students. In its yearly report on the state-of-the-art in educational software at the annual meeting of the American Educational Research Association, EPIE concluded that:

- there is a predominance of high-structure, low-learner control programs in foreign languages;
- the proportion of exemplary programs in the total pool of products available today is still discouragingly low; and
- even though many agencies are evaluating all the products that resources will allow, only about a quarter of available programs have been adequately evaluated.

What previously constituted a veritable flood of new software in foreign languages has slowed to a mere trickle. What happened? In "What's Going Wrong in Classroom Software?" the editors of *inCider* report that:

> Teachers need classroom software, so many copy it--illegally. And that means developers sell less, so

> they stop investing dollars in new classroom software. The result: teachers complain of not enough good classroom software. They're right. Vendors complain they can't make money selling such software. They're right. So everyone loses? Wrong. Solutions exist, but they're not easy.

One solution is to educate teachers as to what is permissable and what is illegal, given the present copyright laws. During the 1985-86 school year, the Baltimore County (MD) Public Schools provided all of their more than 6,000 teachers with a full printed explanation. Two points are of particular interest. The 1980 Amendment of the Copyright Act specifies that it is not an infringement for the owner of a copy of a computer program to make or authorize the making of another copy or adaptation of the computer program provided that it is for archival purposes only, and that all archival copies are destroyed in the event that continued possession of the computer program should cease to be rightful. The second point is that many foreign language teachers buy one copy of a program and load it into all the microcomputers in the lab. In making the distinction between simultaneous vs. sequential users, most copyright specialists hold that sequential multiple users are within legal bounds, while simultaneous multiple users are infringing upon copyright protection. Many vendors of software feel that "nothing short of legal action will put a stop to the drain on development dollars." (*inCider*, 1986) Others hope that teachers will voluntarily curb illegal copying. A solution which meets the teacher's needs for multiple, low-priced copies and still respects the vendor's need to make a profit must be found.

Despite the frustrations of developing software, many foreign language educators, particularly those in higher education, are working to produce high quality, sophisticated programs. Two examples among many are the Massachusetts Institute of Technology (MIT) and the University of Delaware. MIT has received a grant of more than $1 million to develop a new generation of computer-based exercises which use artificial intelligence programming techniques to accept "natural" languages from students and generate individualized responses. Not limited to words on a screen, the programs will include graphics and interactive video elements such as slides and films of native speakers. A third element will be speech analysis. Overall, the system will emphasize language as communication instead of relying on rote learning methods. With the aid of a grant from the U.S. Department of Education, the University of Delaware is developing text adventures which make use of some techniques of artificial intelligence. In an effort to "teach" the computer how to respond, the Delaware team invited secondary teachers and students of foreign languages to come to the campus during the summer of 1986 to simulate the finished materials. The production of software remains a labor-intensive and lengthy project; we will not see the results of these and similar projects for several more years. The increase in quality, however, will be worth the wait.

What Is the Current State of Hardware?

The cost of computers and increased memory continues to decrease. For example, the cost of an Apple IIc is half what it was three years ago. Many respected clones are available at prices far below those of the computers they copy. We are now much closer to hardware independence as efforts of third-party vendors increasingly permit one brand of computer to run software prepared for another. The Macintosh can run Apple II software. Tandy Corporation's new "integrated learning system" consists of a Tandy 3000 running as a host computer and supporting up to 40 Tandy 1000 workstations. With the addition of Tandy's Trackstar Apple II+, the configuration runs both IBM and Apple software and costs about the same as a traditional audio language laboratory.

Some foreign language curriculum specialists are already advocates of desktop publishing. With the addition of a laser printer (already in the $4000 range with volume purchasing) to a computer system, typeset quality materials are only a keystroke away.

Additionally, some software is now available in "strip" form, much like the Universal Product Code on our food products. It is delivered on ordinary paper and can be easily read into a computer by the very inexpensive (less than $200) Cauzin strip reader which permits the movement of data between incompatible computers. This hardware might provide a solution to the problem of how to deliver volume software to large numbers of users.

What Are CD-ROM and CD-I , And Will They Change My Teaching?

The compact disc-read only memory (CD-ROM) uses a silvery disc similar to audio compact discs for mass storage of approximately 500 megabytes of material. This represents about 100 million English words, or a thousand average-sized books (Pournelle, 1986). Products now available on this format include the *Grolier Academic American Encyclopedia* and the entire ERIC archives from 1966-1982 on just three discs (SilverPlatter Information Services). Unfortunately, however, this technology is obsolete even as it is introduced!

The compact disc-interactive (CD-I) will arrive on the market in mid-1987. Besides having a music capability, the same small disc can store 7,000 still pictures and speech-quality sound, and the system will include a built-in computer. Pournelle (1986) reports that the N.V. Philips Corporation plans to sell the CD-I for about $200 more than the cost of an audio disc player, putting the cost in the $500-$1000 range. This, says Pournelle, "will revive the vanished home computer market." Software for CD-I is already under development. Anne Armstrong (1986) notes that:

> The Record Group has several CD-I discs in the works. Among them are an interactive tour of London, street for street, from Roman days to the

present; a genealogical database that serves as an educational encyclopedia as well as a maze game; an audio and visual dictionary that sings and dances; a classic adventure game; an interactive drama seen from the viewpoints of a dozen different characters; and a time machine that shows what was going on in any given year.

It is not difficult to imagine how such programs could be adapted to foreign language teaching situations. Before such adaptations may be realized, however, software developers must be found who would be willing to create software in this new format for the foreign language market.

Who Has Made Strides In Networking And Telecommunications?

Once one understands the basic capabilities of one stand-alone microcomputer, the natural reaction is to want to "link up" to communicate with others. For those who have yet to do this, the *Apple Education News*, January-March, 1986 is an excellent primer. This publication presents the scope, cost, capabilities, advantages and disadvantages of local bulletin board services, district- or state-level network systems, commercial data-base services, and commercial information utilities.

The Maryland Educational Technology Network is one example of a state-wide system. Now two and one-half years old, it is an IBM-based system consisting of seven pilot sites which exchange information by microwaves through UHF antennas, using communications software prepared by the Canadian Educational Microcomputer Corporation (CEMCORP). At one of the seven test sites, CEMCORP has installed Burroughs equipment which provides a 16-bit, UNIX-based, voice in-and-out system with a pointing device. This communications software developed for Maryland has now been acquired by the province of Ontario. Following a 75-school pilot project during the 1986-87 school year, Ontario plans to network 7500 schools using the CEMCORP software.

John Wollstein (1986) has been able to connect his students in Hawaii with students in Japan and Germany using a hierarchy of media. Exchanges of slides and videotapes are followed by telephone conversations, electronic mail (computer-to-computer), videophone (telephone accompanied by slow-scan television), and finally student and/or teacher exchanges. The whole process is surprisingly inexpensive.

Another example of innovative networking is the Communication and Language Line (CALL)--a worldwide network of interpreters connected by phone lines and computer technology. Imagine a policeman in the U.S. having apprehended a suspect who speaks only Twi. His problem is solved by telephoning the CALL headquarters in Monterey, California, where a dispatcher consults his computer for an available Twi interpreter. In the final step, the Twi interpreter is contacted by telephone, and all parties are connected in a conference call. Among CALL's 1100 subscribers are federal, state, and local government agencies, hospitals and crisis lines.

Theodore Roszak (1986) reminds us that "there is a vital distinction between what machines do when they process information and what minds do when they think." These few examples serve to show how computer technology is being used to put people in touch with people.

Vendors

Apple Computer, Inc.
20525 Mariani Avenue
Cupertino, CA 95014

CALICO
3078 JKHB
Brigham Young University
Provo, UT 84602
(801)378-6533

Cauzin Systems, Inc.
835 South Main St.
Waterbury, CT 06706
(800)533-7323

Grolier
95 Madison Ave.
New York, NY 10016
(212)696-9750

The Record Group
3300 Warner Blvd.
Burbank, CA 91510
(818)953-3211

SilverPlatter Information, Inc.
37 Walnut St.
Wellesley Hills, MA 02181
(617)239-0306

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